

**ESCI 410 HABITAT AND ECOLOGY OF PACIFIC SALMON AND TROUT**  
**(aka. Forest-Fish Interactions)**  
Huxley College of the Environment  
Western Washington University  
Winter 2017

**Instructor:** James M. Helfield  
**Office:** ES 338  
**Tel:** 650-7285  
**Email:** james.helfield@wwu.edu  
**Office hrs:** W 2:30 – 4:00 pm or by appt.

**Lectures:** MWF 1:00 – 1:50 pm, ES 313

**Course Objectives:**

Pacific salmon have played a central role in the cultures, economies and religions of the Pacific Northwest (PNW) since the beginnings of human settlement in the region. Over the past century, salmon populations have declined throughout much of their historical range, necessitating significant efforts and expenditures for their management and restoration. This course seeks to familiarize students with the habitat and ecology of salmonid fishes and the ways in which they are affected by human activities. The ultimate objectives are to help students become informed, critical thinkers able to apply technical knowledge and analytical skills to issues in environmental management, and to communicate effectively to professional audiences and the general public.

**Prerequisites:**

ESCI 310 or ESCI 325 or BIOL 325 or instructor permission

**Readings and Course Materials:**

There is no required text for this course, although various books, articles and reports will be cited or recommended during lectures. Readings and other course materials can be downloaded from the [ESCI 410 Canvas site](#).

**Assignments and Grading:**

Final grades will be based on the following:

Practical Quizzes	25%
Midterm Exam	30%
Final Exam	35%
Participation	10%
Total	100%

Late assignments will be penalized 5% per day if turned in without a valid excuse. Students who miss a test without a valid excuse will be given a grade of 0% for that test. If you have a valid excuse for missing a test or a deadline, you should contact the instructor beforehand so that alternate arrangements can be made.

Letter grades will be assigned as follows:

<i>Grade</i>	<i>%</i>	<i>Grade</i>	<i>%</i>	<i>Grade</i>	<i>%</i>	<i>Grade</i>	<i>%</i>	<i>Grade</i>	<i>%</i>
		B+	87 – 89.9	C+	77 – 79.9	D+	67 – 69.9	F	0 – 59.9
A	93 – 100	B	83 – 86.9	C	73 – 76.9	D	63 – 66.9		
A-	90 – 92.9	B-	80 – 82.9	C-	70 – 72.9	D-	60 – 62.9		

**Schedule:**

<i>Week</i>	<i>Date</i>	<i>Topic</i>
1	W 1/4	<u>SECTION I: SYSTEMATICS AND LIFE HISTORIES</u> Introduction: Salmonocentrism and PNW Stream Fishes
	F 1/6	PNW Stream Fishes (cont'd)
2	M 1/9	The Salmonids
	W 1/11	Pacific Salmon I: Definitions and Generic Life History
	F 1/13	Pacific Salmon II: Specific Life Histories
3	M 1/16	No class (Martin Luther King, Jr. Day)
	W 1/18	Pacific Salmon II (cont'd)
	F 1/20	<u>SECTION II. HABITAT AND ECOLOGY</u> Overview of Watershed Hydrology and Stream Ecology; <b>PRACTICAL QUIZ 1</b>
4	M 1/23	Structure and Dynamics of Riparian Zones
	W 1/25	Riparian Functions Affecting Stream Habitat
	F 1/27	Salmon Carcass Analogs and Nutrient Enhancement (M. Sturza guest lecture)
5	M 1/30	TBD (L. Bodensteiner guest lecture)
	W 2/1	Large Woody Debris
	F 2/3	Pacific Salmon III: Factors Affecting Growth and Survival
6	M 2/6	No class (Snow Day)
	W 2/8	Pacific Salmon III (cont'd)
	F 2/10	<b>MIDTERM EXAM</b>
7	M 2/13	<u>SECTION III. MANAGEMENT, CONSERVATION AND RESTORATION</u> Land Use Effects I: Timber Harvest
	W 2/15	<b>PRACTICAL QUIZ 2;</b> Land Use Effects I (cont'd)
	F 2/17	Land Use Effects II: Agriculture
8	M 2/20	No class (President's Day)
	W 2/22	Land Use Effects III Urbanization
	F 2/24	Riparian Buffers
9	M 2/27	PNW Forest-Fish Legislation
	W 3/1	The McNeil River Salmon Derby
	F 3/3	<b>PRACTICAL QUIZ 3;</b> Case Study: Nooksack Habitat Restoration
Dead	M 3/6	Hatcheries and Aquaculture
	W 3/8	Case Study: Chehalis River 2007 Flood
	F 3/10	Jobs vs. The Environment
Finals	TBD	Summary and Review
	W 3/15	<b>FINAL EXAM 10:30 AM – 12:30 PM</b>